The Role of Games Through Gamification

in Higher Education

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Introduction

In the past, the idea of games was related to a form of pastime or entertainment; however, today they have also become a growing trend in formal environments such as business and education. Gaming environments have the ability to hold the user's attention and constantly challenge them. In addition to having remarkable motivational power, games attract industry professionals, and especially students to participate in them often without any reward, just for the pleasure of playing and having an engaging learning experience (12,15).

In an educational environment, the benefits of incorporating game elements provide extra motivation for students (17,22,24). In this environment, students are allowed to progress at their own pace through personal and timely feedback, in addition to developing skills such as problem solving, collaboration and communication.

Gamification is proposed, not as a new methodology, but as a learning technique incorporated to the new times, which transfers the mechanics of games to the educational-professional field, in order to achieve better results, and produce an additional incentive to students in educational centers from basic to higher education.

Currently, students are satisfied with the use of technological tools to support their teaching and learning process, but new processes must be activated and it is necessary to establish what type of Gamification tools improve results in each specific case (20,21,24).

Regarding the methodology of rewards when recognizing the efforts of each student or group, there is a wide debate as to whether they should be physical prizes, qualities obtained, educational bonuses or access to virtual games/platforms (1,3). This is perhaps the most critical point of a methodology in which constant learning is highly valued and which is beginning to be implemented in many educational centers.

Many times and in certain circumstances, the following phrase should be taken into account: "Life is a game. Ask yourself if you like the game you are playing. If not, roll the dice again in a different direction".

What is gamification?

The idea of Gamification is not to create a game, but to use the tools at our disposal to get used to the system: pursuit of a goal-achievement-reward. The objective is to apply this technique in the classroom, based on new methodologies, and to encourage students with dynamics that are easy for them to understand and that are increasingly closer to their out-of-school habits (8).

In short, it is presented as an opportunity to generate that extra motivation that students of all ages need to achieve their goals, and why not say it, their dreams. Taking this step will mean great progress in their learning and in their way of seeing and analyzing things.

Talking about gamification is not necessarily synonymous with talking about devices and digital media, no matter what resources are used, it must be based on three basic principles: the game mechanics, the game dynamics and the game components. The game mechanics allow to involve the student in a friendly and fun way in the activities that are intended to be performed. Within these mechanics can be found: earning points, obtaining prizes, leveling up, standing out in ranking positions or succeeding in challenges and missions. As for the game mechanics, they establish the personal motivations of each student to participate in the gamified activity, for example: earning points, rewards, recognition or prestige, achievements, competition and companionship (13,16). Finally, the game components include avatars, points accumulated by the student, the board or game area (in many cases the classroom itself), digital badges, medals, social status among players and regulations (4,10).

It is necessary to maintain constant teacher training adapted to the new times in the new educational scenario (9). Today's students are experiencing new ways of communicating and establishing social relationships. In this context, Information and Communication Technologies (ICT) play an essential role in the development of these and in the dissemination of knowledge. The inclusion of this didactic-technological resource finds its justification in the new socio-educational needs that the school of the 21st century must assume. Evidently, the use of ICTs implies, among many other changes, methodological innovations, encouraging student participation and offering them an active, participatory and social role. The more traditional pedagogies are being surpassed and replaced by new digital trends within the framework of the information and knowledge society (14).

As a consequence of these socio-educational needs, the Gamification technique is framed, a learning technique that transfers the mechanics of games to the educational-professional field, in order to achieve better results, can produce an additional incentive to students in different educational centers, from basic education to higher education.

Likewise, the different characteristics that this new resource can offer as a support material during the current teaching-learning processes are presented. It also incorporates the approaches of different activities that can be used as an orientation for its later application in the Primary Education stage. The aim is to show the potential of ICT in the educational field, focused on gamification, as a didactic strategy in the teaching-learning processes (2).

Gamification is presented as a learning technique that transfers the mechanics of games to the educational-professional field in order to achieve better results, either to:

- Better absorb some knowledge
- Strengthen a value
- Improve a skill, or
- Change an attitude
- Reward specific actions and behaviors

Differences between Gamification, Serious Games and Game-based Learning

Gamification is the learning technique that transfers game dynamics and its resources to a non-game scenario. It uses resources such as rankings, rewards, badges, prizes or point systems.

Serious Games (SG) are generally computer-simulation programs, virtual reality or video games whose main objective is not fun or entertainment, but learning or practicing skills.

And finally, Game-Based Learning (GBL) is a method that uses games to learn. When the contents and skills that want to be taught are not presented in a classroom, online class or in a book, but through games.

Characteristics of Gamification

- Uses game mechanics in non-game environments, such as an e-learning course, corporate training, formal and informal education, etc. For example, awarding points and medals when different activities are passed, making a ranking where the students' progress is shown globally, organizing contests, etc.
- Its main purpose is to motivate people to perform certain tasks, achieve learning objectives and, ultimately, complete the course.

- In general, it is not applied to the whole, but to certain elements (evaluations, grades, course progress, etc.) with the purpose of improving the learning experience.
- It is advisable not to apply gamification to all the elements of the course, i.e., not to turn every activity or resource into a tool to compete, to get medals.

Lines of work to 'gamify' Education

- Use games in a controlled way (the teacher chooses the game and the moment) so that students acquire the competencies and skills that are supposed to appear in them. For example, making decisions, preparing a strategy, interacting with different elements, acquiring spatial vision, etc. Experiences can be found where the student plays, and then the teacher tries to identify their skills and use them in a formative process. It is very common to include games so that students can socialize better; for example, many communities and social networks include the possibility for users to have access to online games.
- Use the characteristic elements of games. Levels, points, medals, accumulated useful objects, scoreboards or the interface. In this case, it is a matter of taking advantage of the student's predisposition to play in order to increase motivation for learning. In the 1990s, numerous programs were developed in which the evaluation tests (formative and summative) had an interface similar to games such as Trivial, roulette or word search. Nowadays, badges (badges or medals) are widely used in training. The learner receives badges as he/she passes certain activities.
- Re-designing a learning process as if it were a game. This is the most complicated modality; the teacher must design his subject, or part of it, as if it were a game. It is not enough to have an interface with the same elements of the games, but the student must also "play" and thus acquire knowledge, skills and competencies. Platforms are currently being designed to help teachers "gamify" their subject (7,19).

Gamifying experiences: what should not be 'overlooked'

Considering that it is possible to obtain informal learning thanks to a game, it should be highlighted that for a gamification process focused on education to be successful, the learner must be helped to create game experiences that promote the creation of an overall value for the player.
There are two main objectives against which gamification can be measured:
- deliver gamified experiences
- support the creation of overall value for the user.
If gamification is designed solely to increase certain behaviors instead of focusing on emergent game experiences, there is a danger of falling into a trap that leads to

a conflict between the goal of changing people's behavior and that of creating experiences that have real value. Play must first and foremost be voluntary, as is already understood, and also have intrinsic motivation (similar to when we want to learn something). If, as game designers, we try to direct the player's decision making in such a way as to reduce the voluntariness of choice, we run the risk of moving away from the core of the experience. One must then rely on previous theory on flow (6), autonomy, mastery and general experiences of intrinsic motivation already described by other authors (11,23,25).

At this point, another goal for gamification can already be established from a more useful perspective for the educational area: game experiences should give a value of use and as experienced by the user-student. When designing a strategy of these characteristics, the aim is to ensure that the player-student has a series of different experiences and it must be planned what dynamics are to be generated in the classroom (or outside it). Only in this way, the experiences are transformed, and the game mechanics make sense to increase the motivation and voluntary commitment of the players. If, for example, gamification is successful in creating game experiences, but in such a way that they distract the player from understanding the educational content within the game, gamification cannot be considered successful overall. It is therefore important to differentiate mechanics from dynamics. At the base of gamification, as indicated above, are the dynamics, defined as the needs that are satisfied to the player (5) while participating in a game, which are related to the game mechanics, to other users and to the narrative of the game in case there is a narrative. It is possible to fall into the error of not understanding the difference between them, and to consider some examples as gamified activations for the simple fact of generating a reward. We cannot speak of a gamified product in itself to an experience that shows educational content, such as the elements of the periodic table, setting objectives and giving rewards. This example could be further gamified, with the result of the so-called meta-games. In this example, there are also missing rules, narrative or feedback. The latter is the one that allows to give positive (or negative) reinforcements that allow players to find new motivations, or to make it difficult for them to advance in the game. Without rules, the game will not work; it is necessary that all users receive "instructions" to stay within the system and that they never feel that they might not get what they want (26).

The game must provide a system of rules, which together with a set of tasks, will guide the players through a process that will help them master those rules. When a player is engaged in this process, the game will tell them what tasks they should continue to perform next. That is why in a gamified experience its use is suggested, to establish tasks with a clear and determined purpose. The narrative, on the other hand, will include suggestive stories that together with the mechanics will surprise the player.

Conclusions

The introduction of gamification is important because it acquires the role of a motivational tool, since it can transform extrinsic motivation into intrinsic motiva-

tion, thus awakening the student's passion for learning and an enormous need to learn significantly, valuing that the development of a gamified activity is for the benefit of the student himself.

A gamified class survives with arguments centered on the game but implemented as learning experiences that use challenges in real situations and choices whose level of difficulty is increasing, so a gamified class should have an attractive story that allows converting the learning objectives into challenges to overcome (18).

The success of a gamified class in the higher university context should have a series of daily objectives in accordance with its methodological planning, which will have to have a system to measure the progress of the same; this is because an educational system that resorts to gamification is guaranteed to reduce stress and anxiety levels, paying more attention to the involvement in the game.

Gamification as a support for the university teaching strategy eliminates the uncertainty about why I learn and with what I learn, as well as the monotony of the expository model, since the implementation of a gamifying activity helps both the student and the teacher to objectively know the level of progress in the personal learning of each individual based on their own interests.

It is determined that gamification positively affects the learning process since it allows stimulating motivation in students, particularly by the positive interaction between teacher and students.

Gamification allows a positive competition in class, as well as a reactivation of the feeling of excitement of the winner or set of winners who have participated.

Finally, one must be aware that not everything can and should be gamified. There are times when gamification discourages students from continuing in the process. To avoid this, the objective of the game must first be established, the process must be checked to ensure that it is correct, and the tools to be used must be chosen appropriately.

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